EVIL, MEAN, AND ROTTEN.

A fantasy game for the bad guys? Yea, verily. *Monsters! Monsters!* is the new fantasy role-playing game from Metagaming Concepts. No more good-guy heroes. In *Monsters! Monsters!*, you become a *monster* character — come *up* from the dungeons — stalk *into* town — and **wreak havoc.** The *eviller* you are, the more experience points you'll earn...

Monsters! Monsters! was designed by Ken St. Andre, lavishly illustrated by Liz Danforth, and edited by Steve Jackson of the Metagaming staff.

As with our previous game, *Stellar Conquest*, every effort was made to provide a clear, complete rule system. Major omissions and contradictions that plague other game systems are avoided by a carefully organized format. This is an excellent game for novice Game Masters and new fantasy buffs — and should be a relief for experienced gamers exhausted by confusing rule systems.

Monsters! Monsters! is a 52-page, 8½ by 11 rule book with Danforth's full-color cover. Also included are four maps for the Game Master to use in setting up an initial adventure.

Rules sections include:
Introduction
Game Mastering and Setup
Character Creation
Experience Points
Sequence of Play
Combat (including General Discussion, Combat Turn Sequence, Wandering Enemies, Reaction Table, Saving Rolls, Unusual Combat, Unarmed Combat, and Weapons)
Magic

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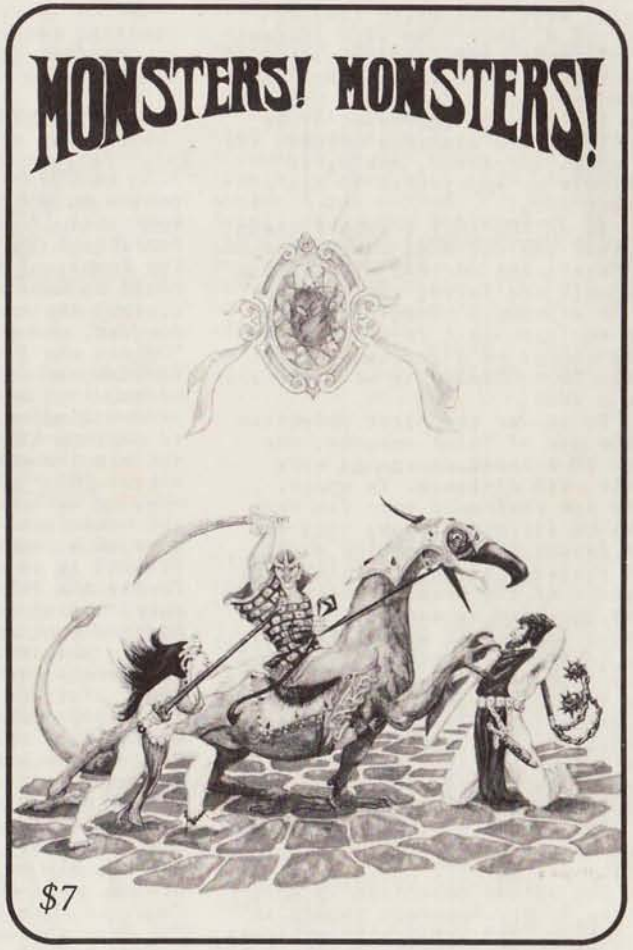

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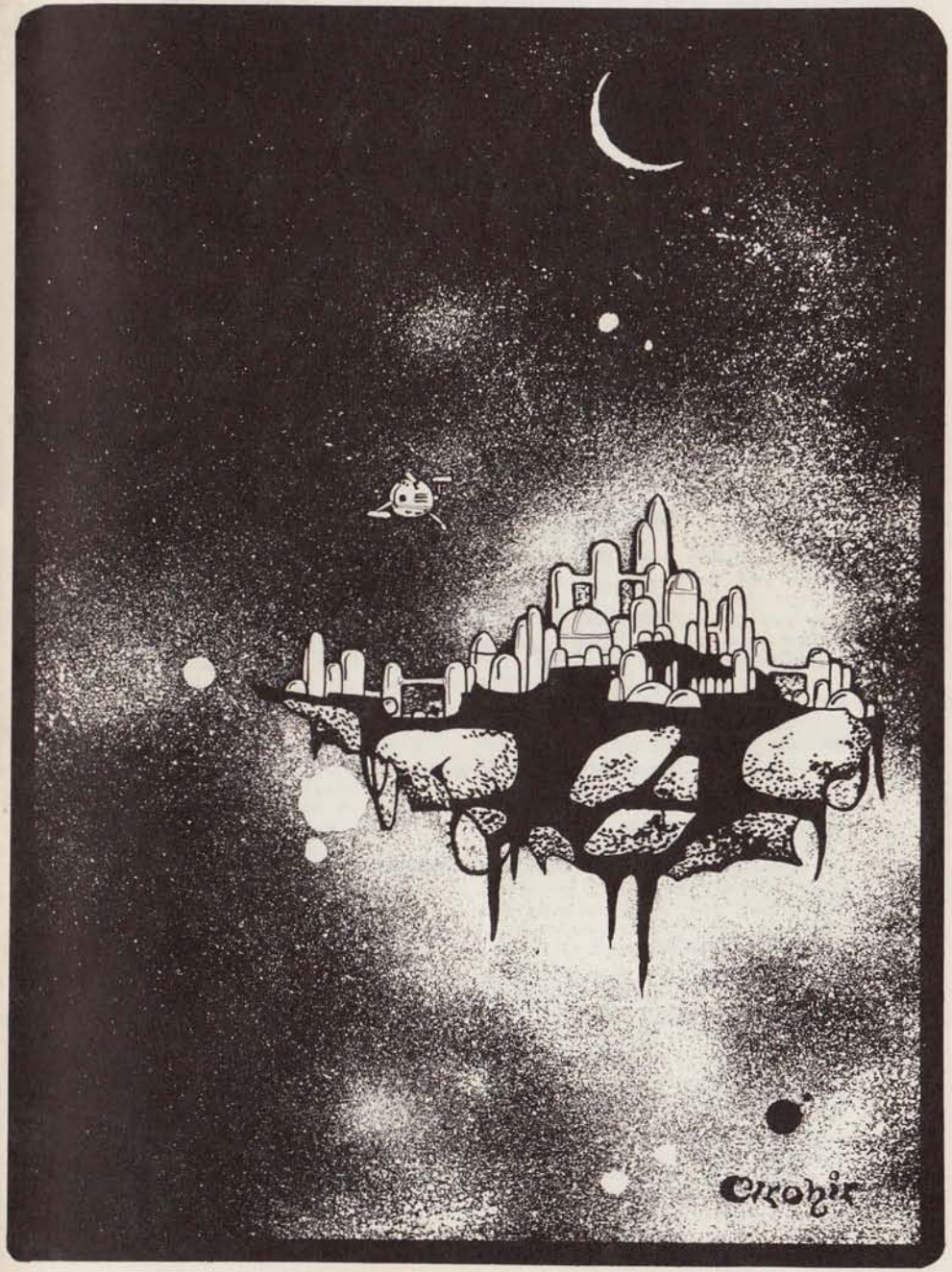

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Where We're Going

Mostly business this time.

Order problems/information: The holiday season is coming so expect a bit longer than usual delivery time. Third class mail is delivered after first class mail if there is a backlog.

Also, be sure and let us know your new address as soon as you make a move. TSG is currently Bulk Mailed. Bulk Mail isn't fowarded unless you specifically tell the U.S. Postal Service you will pay postage on all mail fowarded. Otherwise, the TSGs are returned to us.

When you write to us it is best to keep your order information on a seperate sheet from letters. We are less likely to miss it that way. With over 1,000 circulation we do get lots of mail. All is read at least twice during the normal mail processing cycle. Actual letters of comment, problems, etc., will get handled three to five times. Only a fraction of letters can be answered but we do listen very well to all you say. TSG readers have taken us at our word about airing gripes and problems as well as giving us praise. We can't ignore you like government and the phone company.

MicroGames Project: Our MicroGames were the suprise hit of last issue's feedback. All segments of our readership were favorable toward the idea except for the complexity/sophistication buffs where reaction was still fair. The two key elements seem to be price and the shorter playtime. Also crucial is a playable, well designed game.

Based on your response MicroGames go up on our project list. To be a success, ie. economically possible, they will have to attain a 50% to 100% larger distribution than our first games. So, let your local store know you like SF&F gaming and tell a friend we'll send him a copy of TSG for the asking.

With a little luck and your support TSG #9 (Jan/Feb) may see the announcement of the first of a series of MicroGames. With pricing a sensitive factor don't look for super components. Counters won't be fully die-cut but there will be a color cover booklet and map. Most effort will go into making the rules work. Specialty short games for pros that are also good starts for novices is the goal.

Computer Games: TSG #7 feedback showed less support for computer games than we'd hoped. Not that there wasn't a lot of enthusiastic interest. It's just that MicroGames and the fantasy role game did better. Price did seem to be a factor based on comments but the Universe idea rated a bit higher than a computerized Metastar system 80. A game that put you into contact with other gamers, computer controlled sophistication, ratings, etc, etc, seemed a natural.

I wish there were a way of doing more than a bare bones game cheap. A $1,000 hobby computer won't cut it A $40,000 IBM System 32 falls short, too. The advent of 16K bit MOS RAMs, cheaper peripheral devices, and advanced microprocessor CPUs is going to help. But, it will still cost several times what it takes to get a STELLAR CONQUEST or GODSFIRE to market.

We do have the expertise to do a really superior job on computer games. More effort will go into lowering cost. It may be that an initially simpler version that can cost $1 per turn will be offered. Or, an even more complex version might be offered for the same price. $1.25-$1.50 per turn may seem expensive, but if you are getting 10-20 hours of play value from each game turn and corresponding with other players, it's dirt cheap A $1.50 paperback reads in two to three hours. $1.50 in quarters into one of the new video games like TANK, BIPLANE, etc. is gone in fifteen to twenty minutes. So, before you sneer at $1.25, think about what other entertainments cost. Sure, a stand-alone game like GODSFIRE is $15 for possibly hundreds of hours of play by two to six gamers; but, you don't get such complicated servicing and background computation either. $2.50 to $3.00 per month for unique gaming is pretty cheap.

Let us know your thoughts and ideas on computer games. A more detailed feedback form based on your comments will tell us better how to do it.

Good gaming,
Howard Thompson

Speculations

TRIPLANETARY: SOME SUGGESTIONS FOR REVISION

by Steve Jackson

TRIPLANETARY has to be considered a first-class wargame. Because of its SF slant, it will never command the following of, for instance, DIPLOMACY. However, it is an excellent example of its genre. The adaptation of "pulp" space opera concepts to viable game situations, the clean design of the board and counters, and, most of all, the classically elegant simulation of inertial motion and gravity make it both a challenge to the gamer and a great escape from reality.

Still, there are several problems with TRIPLANETARY. A number of factors are not handled in the most elegant way possible, or involve unnecessary artificialities. To a certain extent, of course, these criticisms are only matters of taste. However, I think the game may be tightened up. This article will present a number of suggestions for rule changes which retain the game's flavor while improving play.

The Board

The only problem with the Triplanetary board is that it is too small. In order to represent most of the Solar System on one moderate-sized hexsheet, it was necessary to take great liberties with scale and put all the planets on one side of the Sun. To add insult to injury, ships are prohibited to leave the board. Violators are considered eliminated.

This is not only completely artificial (an "edge of space"?) but frustrating as well. When a battle is lost in supposedly endless space because a ship goes one hex too far, it hurts. But the hexsheet is limited, whether we like it or not, and some rule has to be made about the boundaries. So, why not make the rule:

"Ships may not voluntarily leave the board for any reason. They may, however, leave while disabled, provided that, on an infinitely extended hexsheet, they would be able to return under their own power. Disabled ships which leave the board must return by the shortest possible route, including overload maneuvering. (An extra hexsheet is helpful in figuring this). Ships which leave under other circumstances are eliminated."

This is both more realistic (although still artificial) and much less frustrating. Note, too, that although you may not pursue a disabled enemy off the board, you can set up a reception committee at the point where he must return.

Mines and Torpedoes

Under the present rules, torpedoes are much too deadly. Mines, on the other hand, are too weak. A torpedo-lauching ship pushes a circle of near-certain death, three hexes in diameter, in front of it. If such a ship is heading toward you at any rate of speed, you're dead. This isn't battle; it's slaughter. Boring, too.

As for mines: why have them self-destruct after five turns? Mines are much more useful as permanent obstructions than as temporary nuisances. And, I think, they should be stronger.

Furthermore, the present rules impose no cost penalty for the use of mines and torpedoes. It seems more realistic to require that such ordnance be paid for at the time it is loaded onto a ship.

We can replace the present types of ordnance with two others: "smart mines" and "dumb mines." (Well, they're easy to remember...)

Smart mines cost 1/2 point. They do not attack the ships, bases, mines, etc., of their owner, because they are equipped with a device which identifies (possibly by a coded beacon) friendly units. Smart mines will not attack asteroids if they are dropped, stationary, in the asteroid hex; however, they will attack asteroids if they are moving.

Dumb mines cost 1/4 point. They will attack anything.

Both types of mine attack in the same way. Any unit that enters a mined hex, or any unit in a hex that mines enter, has a 50% chance of being attacked by each mine. Roll the dice: on a 1, 2, or 3 the mine attacks. Otherwise, it did not sense and home in on that target.

When a mine has several targets to choose from, it prefers, in order: asteroids, other mines, bases and ships in order of size. (Freighters, tankers and liners are all slightly smaller than Frigates.) If a mine does not attack the preferred target, it rolls to see whether the next is attacked, and so on. Thus, if a mine enters an asteroid hex containing a dreadnaught and a corsair, it rolls, first, for the asteroids; then (if it misses) for the dreadnaught, and then (if it misses again) for the corsair. If the mine misses all its targets, it continues unaffected.

If and when a mine actually attacks, no special CRT is needed. The mine attacks with a combat strength of 4, with no reductions. A mine which makes an attack is destroyed, regardless of its effect on the target.

Since any mumber of smart mines may be placed in the same hex, their attacks are combined into one roll.

A ship may drop one mine per turn. The mine retains the dropping ship's velocity. A ship which drops a dumb mine must change course on the following movement phase or be attacked by the mine.

Smart mines are good for defending planets or bases. Dumb mines are excellent for offense, or for "sweeping" enemy smart mines. (Note that hostile mines in the same hex have a 75% chance of destroying each other, since both attack.)

Asteroids: Detection

The system given in the rules is neither completely unambiguous or completely realistic. Suggested revision:

"Ships and bases have a normal detector range of 3 and 5 hexes, respectively, in clear space. Asteroid hexes, though, count double. Thus, one clear hex and one asteroid hex are the limit of a ship's detection. Two asteroid hexes exceed the limit; the ship CANNOT detect into the second one. A base could detect up to two asteroid hexes and one clear hex, but could not detect into a third asteroid hex."

Asteroids: Combat

It is only logical--and adds interest to the game--to assume that asteroids interfere with gunfire. Therefore, for combat in the asteroids, subtract one from the die roll for every asteroid hex in the line of fire. This is in addition to all subtractions for range and vector difference.

Simultaneous Movement

At its best, this is still slower than sequential movement, and should not be attempted by novices. However, for those for whom astrogation and combat-odds calculation have become intuitive, it may improve the game. Certainly it is more realistic.

All instructions are written. A ship may be ordered to accelerate to the hex "northeast" of its projected endpoint--this is "a". The next hex clockwise is "b", and so on. (See Figure 1.) An overload maneuver may be indicated, for instance, as "aa." Ships not ordered to accelerate move to their projected endpoints.

Combat instructions specify what ship(s) are to fire at what target(s). Obviously, odds cannot be computed until we see where the enemy ships went. If two ships move into the same hex, either may attempt to ram after combat results are applied.

The counterattack rule may then be dispensed with. Note, though, that this eliminates up to half the potential combat in a given Game-Turn. Where two equally matched ships might have fired at each other twice in one turn (one player's fire, opponent's counterattack; opponent's fire, first player's counterattack), each now shoots only once. Situations which did not permit counterattack (i.e., attacks on very small or unarmed ships) are of course unaffected. Thus, the average engagement lasts longer, giving the underdog a better chance to escape.

Rendezvous

Ships which match course and position for transfer of fuel, weaponry, etc., are said to be "rendezvoused." This has advantages-but in reality it would also have drawbacks which should be reflected in the rules.

First: In scenarios where some ships are "undetected" until they approach an enemy ship, any undetected ship which rendezvoused with a detected ship is itself detected. (Rationale: Whatever is being used to keep track of detected ships--long-range cam-operated tracking scopes, maybe--would certainly notice the new ship as well.)

Second: Two or more rendezvoused ships may be attacked in one roll. (After all, it would be difficult to hit one without hitting the other.) The dice are rolled once, to determine the accuracy of the shot.The odds are then calculated separately for each ship. Example: A Frigate fires on a Tanker rendezvoused with a Corsair. The roll, adjusted for vector and velocity, is a 3. This means that the Corsair is D2 (since Frigate

vs. Corsair is 8 vs. 4 or 2-1), while the Tanker is D4 (since Frigate vs Tanker is 8 vs. 1, but 4 to 1 is the maximum.) If you are playing with the counterattack rule, all counterattacking ships attack together.

This effectively doubles the firepower of a ship attacking rendezvoused ships, but is actually more realistic. He's not dividing his fire--he's attacking one big target, some parts of which are more vulnerable than others. Thus, defensive strengths are compared, separately, to the attacking strength.

When this rule is in effect, a player must state which, if any, of his ships are rendezvoused when more than one are in a given hex.

This rule raises interesting tactical problems, expecially in the Piracy scenarios, when it may be necessary to forego a shot at the pirate in order to avoid doing much more damage to an innocent bystander.

Refueling, Maintenance, and the Overload Maneuver

The rules state that (1) ships may transfer fuel back and forth, (2) refueling ships "undergo minor maintenance concurrently," and (3) minor maintenance renews a ship's ability to utilize the very useful "double-burn," or overload maneuver.

Strict reading of the rules, obviously, would let two ships in cooperation undergo indefinite overloads.

It is suggested that minor maintenance, permitting the double-burn, only occurs when a ship refuels at a base. It might be best to limit this even further: the ship must land on (or stop at) the base. Orbits (of a planet) or flybys (of a base), suffice for refueling, but not maintenance.

Heroism

"Disabled ships often run the risk of leaving the game map, or of colliding with planets and asteroids. Any ship which successfully rescues such a disabled ship, and returns to a planet, becomes heroic." Thus saith the rulebook. Heroic status makes a ship fight better.

Cute idea. Unfortunately, nowhere in the rules is it explained, or even implied, HOW a ship can rescue or aid a disabled comrade. Maybe figuring it out is the heroic part? You could transfer fuel, but that won't get it un-disabled any faster.

There are three possibilities:

(1) A ship, by rendezvousing with a disabled ship, could aid in repair work. That ship would become un-disabled at 2D/turn, twice the normal speed. Thus, a D4 ship could operate in only two turns.

(2) A ship might take another ship in tow by matching course, linking up, and expending two fuel points per course change (if the towed ship is the same size or smaller) or three (if it is bigger.)

(3) This is the one I like. You could forget about the "heroism" rule entirely. If you're really the heroic type, your play will show it.

Try these suggestions out: you may like them. A good game is worth improving.

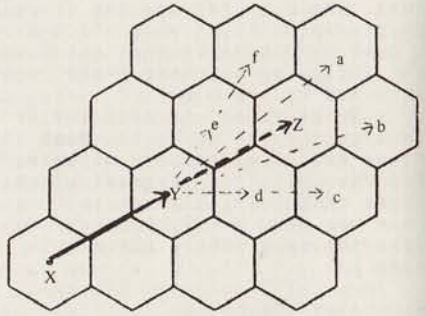

Figure 1. Notation for simultaneous movement. Y represents the ship's present position, X its position last turn. The solid arrow, therefore, was its movement last turn; the heavy dotted arrow is its "projected" movement. That is, the ship will move to Z if it expends no fuel.

By burning one unit of fuel, the ship may alter its course along any one of the dotted lines, ending up in any of the six hexes marked "a" through "f".

Thus, one letter can be used to describe the course change, if any, ordered for each ship.

THE SOVIET MANNED SPACE PROGRAM: THE NEXT THREE YEARS

by Robert Taylor

In attempting to analyze the Soviet manned space program and its future plans, one faces the task of trying to focus on an enigma. The Russians are still extremely secretive (although not to the degree of past years) about their space program. They do not announce their missions or their objectives in advance, nor do they volunteer much specific information even after a successful flight.

Yet a manned space program by its very nature is a rather visible thing. During the Apollo-Soyuz mission, the United States learned a great deal about Soviet capabilities and limitations. Through defectors, spy satellites, and sometimes---inadvertently---through the Russians themselves, more information has been gained about the status of the Soviet space program.

It is the intention of this article to synthesize that information, and present a broad picture of what to expect from the Soviets over the next three years.

In general terms, the Soviets will probably launch three to five missions a year. Each mission will utilize the Soyuz space-craft and the Salyut space station, where scientific, military, and engineering activities will be carried out. It is highly probable that on occasions the Soyuz will fly independent of the Salyut (when the Russians are testing new equipment) Such was the case on Soyuz-22, an earth resources flight testing new hardware to be used on future unmanned satellites.

Beginning in 1978, cosmonauts from Eastern European countries will fly as flight engineers on Soyuz missions. These missions will of course be commanded by a Soviet pilot, but this type of cooperation will be of major propaganda value to the Russians. The cooperation may also give the Soviet space program something it sorely needs- fresh thinking and input.

The main objectives of the Soviets over the next three years will be a permanent manned space station. They are certain to attempt this before the U.S. space shuttle can begin constructing an American space station.

This objective is within Soviet capabilities, but barely. Soviet limitations in the space field are twofold. First, the hardware problems: The Soyuz spacecraft, the current workhorse of their program, is not the engineering equal of the U.S. Gemini vehicle, which last flew in 1966. The Soyuz does not have an onboard computer, its inertial guidance system is suspect, most major systems have no backups, and quoting a U.S. astronaut, "almost all activities aboard the Soyuz are controlled from the ground, even shutting off the lights." The life-support and safety features are very limited, and the spacecraft's overall structural design is faulty and weak. The worst aspect of the Soyuz is its flight record. Twenty-five per cent of all Soyuz missions have been failures, and two flights ended fatally. But Soyuz is only one example of the uncertain reliability of Soviet hardware.

In the field of rocketry, the Russians have made few advances since Gagarin's flight. They have been unable to develop rocket engines of any great power since they do not have the metals to withstand the high temperatures.

Russian electronic and computer systems are years behind the West. In fact, the Soviets often buy Japanese or West German equipment, when they fail to miniaturize components of their own.

The second limitation, and the most damaging, is the Soviet approach to space flight. The Russians are very conservative in their thinking. They pursue narrow and limited goals. The management behind the Soviet program is quite poor. It is dominated by bureaucratic inefficiency and political demands. Most problems are dealt with in isolation. A problem maybe solved, but its causes are usually glossed over. Three different Soyuzes, as an example, have failed to dock. This is representative of a lack of technical thinking and a weak system control.

This conservative approach has stymied any innovations. As long as a piece of equipment works most of the time, the Soviets see little need to improve it. As a result, there have been few improvements in any of their hardware or systems, and very little thinking toward any redesign.

With all these shortcomings how will the Soviets achieve their objective of a permanent manned space station? Essentially through over kill. No matter how poor the

management, how faulty the equipment, enough missions will succeed to get the job done.

The Russians have enormous resources. They have and can pour huge amounts of materials; large numbers of scientists, engineers, whatever is needed to reach their goals. And among those resources is money. The Soviet space budget is believed to be twice that of the U.S. program. This method is wasteful, costly and dangerous, but it will work.

The actual configuration of the space station will probably be limited to two or three Salyuts joined together. The reputed Saturn-5 class booster of the Russians is still experiencing difficulties, and there have been some reports the booster has been scrapped.

Therefore, it will take a series of launches to get up the necessary material. Construction will require EVA. Something the Soviets haven't attempted since 1969, but they do have the ability. This space station will have a crew capacity of six, and will be resupplied by unmanned Soyuz type vehicles.

The purpose of this space station will be varied, but its major emphasis will be on military reconnaissance. Both Salyut three and five were military space stations, and the Soviets are eager to have a permanent on station orbital reconnaissance system. Their current unmanned method is both severely limited and unreliable.

There will of course be a great deal of scientific work done. The Soviets are developing a new telescope for planetary studies, and they will continue to investigate such areas as crystal growth and earth resources photography.

For the next three years, while the U.S. space program is dormant, the Soviets will dominate the headlines. They will probably score many space firsts, and perhaps pull off a few surprises, but with their rigid thinking, their limited technology, and their emphasis on military oriented flights the Soviet space program will remain a narrow and self-constrained endeavor trying to conquer an area where unbridled imagination and initiative are the most important assets.

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SIMONSEN'S TRINITY AND GRAND DUELS

by Scott Rusch

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In TSG#6 a very interesting article appeared. It was written by Lynn White, and was named "SPECULATIONS: Space War Games-Avoiding Cliches." In it, the author pointed out that technological progress, typified by automation, transmutation, and fusion power, would eventually result in a world of abundance and leisure. This article is to carry her ideas a little farther.

For one thing, very complicated mechanisms will be controlled by individuals with computer-link implants. These implants (see Pournelle's article in the September '76 Galaxy) will feed information directly into the brain as though you were remembering it. This will allow you to keep track of many different factors (such as a space fleet) as well as have instant knowledge of anything in the computer's memory banks. Expertise will no longer be knowledge of something, but rather experience in doing it. The human race, therefore, will have three different pastimes, come the millenium: the search for knowledge, the creation of art and sport (warfare comes under this category), and the pursuance of public business.

Do not be deceived by this utopian picture; there will be competition and conflict. Rivals for power (such as is left) for a woman, man, or boy, or leadership in a hobby or sport will at some time or the other come into conflict. And they will not be easy to control, as each can command the production of armies at a thought. For safety's sake a "code duello" will be developed.

How will these duelers fight? I suppose there will be a great variety in the methods used, from pistols at dawn for traditionalists to interstellar wars for connoisseurs. And there may indeed be connoisseurs, for death may not be serious anymore (memories in the computer could be fed into a cloned body after the first one's demise). Old age will also thus be dealt with, so that time may easily be spent on a long-term interstellar duel.

To see how such a duel may be performed, let us use Stellar Conquest.

Each player is put at a star system, which he may never leave, with nothing but himself and his transmutor. He has all the technological levels, but may only buy SCTs, ATKs, ESCs, DNs, MBs, and AMBs--no PFS, IUs, RIUs, or CTs. The transmutor puts out 120 IU's each year-not just every production year. One may also buy another transmutor by expending 120 IUs. MBs and AMBs may only be emplaced on the home system, and no moving transmutors. Object of the game-to win decisively by destroying all the MBs and AMBs of the enemy's home system, thus killing him; or to win marginally by having more stars occupied or last passed through by your ships at the end of turn 40. For two player games use either Ceti and Canis or Scorpii and Bootis and ignore the other half of the board. For three player games use Diphda, Aurigae, and Tauris or any other reasonable combination. For four player games use Scorpii, Canis, Ceti, and Bootis.

Now, the reasons for these rules. For one thing, most of the other stars are used by people uninvolved in the spat, and so cannot be used directly, though the spaces around these stars will be fought for by the robot ships. For this reason, and to limit the spread of combat so the authorities can control it, the duelers have to stay in their particular systems. The duelers will use the same technology from fairness and from lack of research personnel (with only one human on the planet, and him busy running a war, not much R & D can be done). And no PFS-it defeats the entire purpose of the duel.

So now, like the gods of old, go and enjoy your wars!

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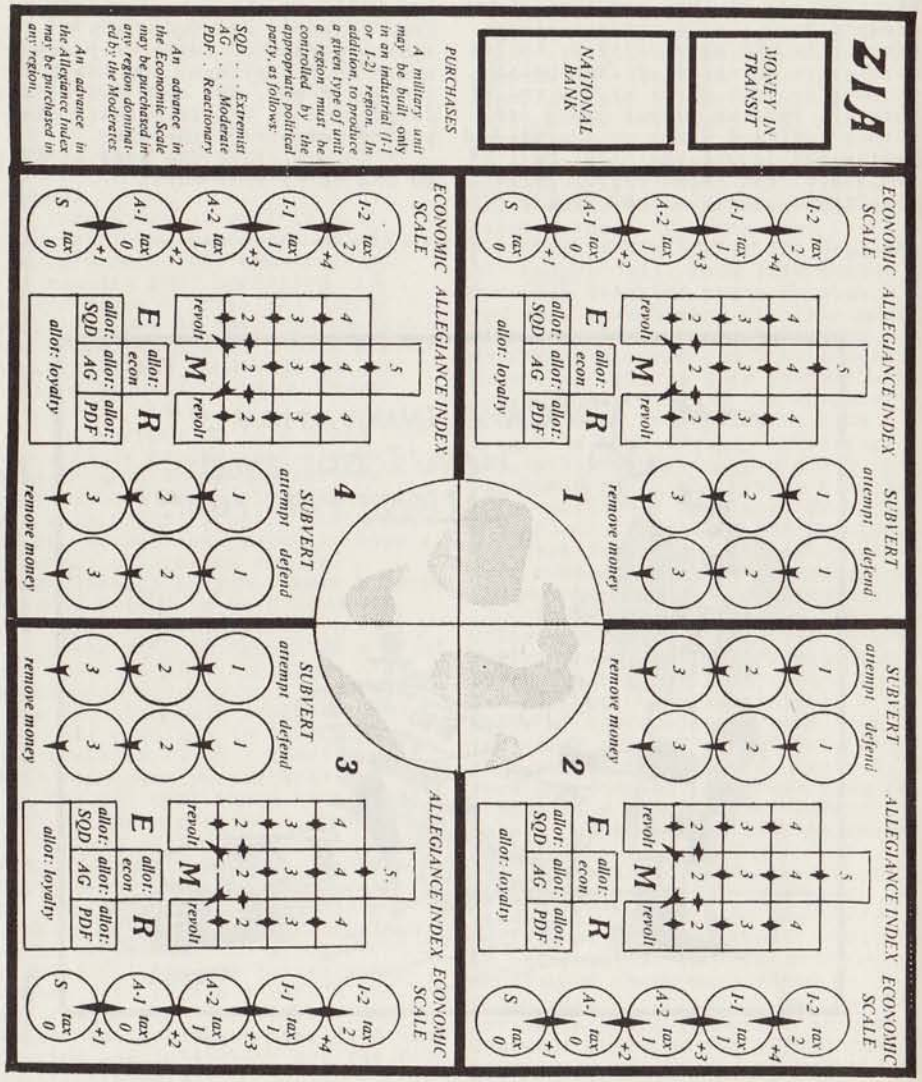
This is a systems sheet for GODSFIRE. Enjoy it and hold on for the game. It will be out in time to play at Christmas.


ZIA
MONEY IN TRANSIT
NATIONAL BANK
PURCHASES
A military unit may be built only in an industrial (I-1 or I-2) region. In addition, to produce a given type of unit a region must be controlled by the appropriate political party, as follows:
SQD . . . Extremist
AG . . . Moderate
PDF . . Reactionary
An advance in the Economic Scale may be purchased in any region dominated by the Moderates.
An advance in the Allegiance Index may be purchased in any region.
ECONOMIC SCALE
ALLEGIANCE INDEX
SUBVERT
attempt defend
remove money
allot: loyalty
allot: econ
allot: SQD
allot: AG
allot: PDF
revolt
tax
1
2
3
4

feature

LASER WEAPONS COMPARED TO PROJECTILE WEAPONS

by Steven List

Charles Bowles' recent article on laser weapons was an interesting survey of currently available technology, but I think he failed in one important respect: a comparison of laser weapons to conventional weapons quantitative terms. The table shown at end of article gives data on several "popular" German weapons of WW II, with the final column, Muzzle Energy, being the kinetic energy of the projectile as it leaves the gun tube. The chemical explosive that some of the projectiles carry is not counted. That is, the energy transferred to the target is solely a function of the energy output of the gun.

Muzzle energy is chosen as equivalent to Mr. Bowles output power figure. Just as a laser beam in air loses energy through thermal blooming and other dissipative mechanisms, a projectile slowed by atmospheric drag loses kinetic energy. When the projectile has slowed to about 71% of its muzzle velocity, it has already lost half its muzzle energy. Kinetic energy is proportional to the square of the velocity, but so is the drag. Therefore, as the projectile slows, drag decreases and less speed is lost. As the laser power loss to thermal blooming are related to the inverse cube of the distance, the power level falls off faster. To make a meaningful comparison of the two types of weapons, an exact range should be specified. But for qualitative purposes, a comparison of muzzle energy to power output is valid.

Since a watt is a joule/sec, or a joule is a watt-sec, the thermally-pumped gas-dynamic laser Mr. Bowles cites must operate for a full second to put out 60,000 joules. This is little better than one percent of the over 5 million joules of kinetic energy for the King Tiger gun. While it is 15 times as much as the small arms round, a typical machine gun could fire about 10 round per second, making that advantage minimal; modern small arms such as the M16 or AK47 have even higher rates of fire and muzzle velocities; - on a time rate of energy output (i.e. power), the laser is about the same as a modern infantryman's weapon.

Another problem is weight and power supply. With no more than 20 pounds of rifle, ammo and accessories, a single man is very mobile and well fixed for a fire fight. I have no idea what the weight of this laser is, but an output of 60 KW at 1% efficiency requires 60000KW of input. For a thermally-pumped laser, this means heat at the rate of 6 million joules per second. This heat has to come from somewhere, and in concentrated form (the heat is present in the air, but since the average-sized window air conditioner needs about an hour to pull six million joules out of the air, this is not a practical source), which indicates some sort of chemical reaction. About the simplest is burning fuel at atmospheric pressure. A gallon of #2 oil (diesel) has a heat value of 146 million joules. Assuming as much as 80% of this heat can be captured and pumped into the laser, the fuel consumption of continuous operation would be about 3 gallons per minute. Of course, there are other ways of generating heat, but they would require heavier equipment. After all, the gun is a device for burning fuel under pressure in order to extract mechanical work rather than heat.

Regardless of the way the heat is obtained, even if 100% is pumped into the laser it will waster 99%. In one second, for 60,000 joules of useful output, 5,940,000 joules of waste heat must be disposed of. That is nearly enough to vaporize 100 cubic centimeters of iron.

Examine the pulsed electrical CO_2 laser, which is 24% efficient and puts out 2000 joules per pulse. It only takes two pulses to equal the German machine gun bullet, a mere twenty pulses per second to match its rate of fire. Twenty pulses/sec at 2000 joules/pulse is 40 kilowatts. To get this output from a 24% efficient electrically-pumped laser requires 166 KW of electric power, which is about the output of a generator driven by a 200 HP engine. Sure, there are more efficient power sources, such as fuel cells, but they all have their own drawbacks. What it boils down to is that a laser with a power output comparable to that of an automatic rifle, with current technology, would require a vehicle to cart it and it's power supply around. Nobody is going to bother unless it's worth it.

Is it worth it? Well, in little over a second, the thermal laser's 60KW output (neglecting losses in air) will vaporize a cubic centimeter of iron. This is dandy if you want to shoot at one centimeter cubes of iron which will obligingly hold still for as much as a second. Don't, however, plan on making little craters in the side of a tank with such shots. Even assuming you can keep your laser beam on the same spot of a moving target several thousand meters away, you won't even warm it up. Iron (of which armor plate is an alloy) is a tremendous conductor of heat. To melt a hole in it, you have to put heat in faster than it can disappear by conduction. And a 60 ton tank can absorb a lot of heat before getting very warm. An automatic rifle won't put a hole in a tank no matter how many shots hit the same spot; a laser of this power won't either. (A short digression is in order. Some may argue that a laser beam is hotter than the 1600 or so degrees of an oxy-acetylene torch, which cuts iron quite readily. However, the torch cuts the iron by providing an excess of oxygen, which at the elevated temperature literally causes the iron to burn up. Also, such a torch is very poor at punching holes in the middle of a thick plate.)

Since a rifle can kill a man much more easily and economically than the laser, its use as an anti-personnel weapon is distinctly secondary. What other targets might be worthwhile? Vehicles are out--those worth the effort are too well armored. Nobody builds armor plated aircraft. The thin skin of an airplane would be far easier to melt holes in than armor plate, and most of the interior components are unprotected. It is far easier to hit a plane with a beam of light than with a projectile, as well, but there are still serious problems. Most aircraft have highly-polished skins that would reflect most of the incident energy-meaning incredible power rates would be required to get sufficient energy onto the target in a very brief time. To make an effective anti-aircraft or anti-missile system, much greater laser efficiencies are required, with a computerized target aquisition and ranging system to bring a converging beam to a point-focus on a rapidly moving target.

Considering the power levels involved, Mr. Bowles infantry laser weapon is currently impossible. And unless the waste heat problem is solved, we would indeed have "a very interesting picture of night combat", as a firearm-equipped sniper with an infra-red viewer would have a wealth of targets literally lighting up like beacons with each shot fired.

Do lasers have any future as weapons, as opposed to their use as triggers, ranging devices, etc? Maybe not on earth, but quite possibly in space. Research is being conducted on nuclear-pumped lasers which have a gas laser tube coated with uranium oxide. Slow neutrons are directed into the tube. These neutrons react with uranium nuclei to cause fission and the release of more neutrons in a chain reaction. The energy released pumps the laser. Current lab models of such units are woefully inefficient, with power outputs about that of a flashlight. But far greater efficiencies could be achieved if the neutron source were combined with the laser. The tube of the laser would contain both the lasent gas and a gaseous nuclear fuel, forming laser and reactor in one. The total available energy of the reactor would emerge in the laser beam, providing power in the gigawatt range with negligible heat waste. Such units are envisioned as orbital power plants, beaming energy to remote users such as spaceships or lunar installations. Needless to say, a laser with that much power would be a formidable weapon. About the only drawback would be the inability to rapidly turn it on or off.

WEAPON TABLE

Weapon	Projectile(kg)	Muz.Vel.(m/sec)	Muz.Energy(joules)
7.92mm - rifle, machinegun	.0128	770	3,990
20mm L/55 - Lt.tank, arm. car	.115	800	36,800
75mm L/43 - Pzr IV f2 "Special"	6.8	740	1,860,000
75mm L/70 - Panther tank	6.8	935	2,970,000
88mm L/56 - Tiger tank, Flak	9.4	810	3,080,000
88mm L/71 - King Tiger tank	10.4	1000	5,200,000

THE YTHRI: INNOVATIONS APPLAUDED

by William Brogden

In my opinion, this game breaks new ground for science fiction gaming and for war gaming. The major innovation is a way of handling movement and combat on three levels, space ships, atmosphereic craft, and ground forces. Another innovative aspect is the extremely asymetric distribution of forces. The invading Terran player has overwhelming force, so a "win" for the Ythri player consists of putting off the inevitable for more than 15 turns.

Space warfare typically lasts only a few turns, during which the Ythri space force attempts to delay the invasion and to destroy as many troop transports as possible. This is a very critical phase for the Ythri player, and good or bad luck here can have a large influence on the rest of the game. I think the movement and field of fire rules are extremely good; accounting for inertia in terms of turning ability is nicely handled, and I really like the orbiting guardian satellites.

Combat on the planet's surface works well, with the atmospheric and ground forces having different movement and sphere of influence rules. However, based on playing 8 or 10 games, it seems to me that the Ythri player has rather restricted defense strategy possibilities. This is due in part to a lack of guerrilla tactics which the highly mobile native forces could utilize to interfere with the movement of Terran forces and supplies. The Ythri atmospheric units can give some flexibility if unopposed, so it is extremely important for the Ythri player to destroy Terran atmospheric unit transports in the space warfare phases.

The instructions are very clear with good examples and have been kept simple enough so you can begin play very rapidly, yet the game has a lot of depth. There is a big psychological difference between the sides of the game which reflect the spirit of the novel it is based on. As the Ythri, you watch the huge Terran war machine move in on your planet. You can't hope to beat them, but you may be able to hold out until external political forces make the Terrans withdraw. As the Terrans, you almost feel sorry for the pitifully small Ythri forces, but they turn out to be surprisingly hard to eliminate.

This is an innovative and mind-stretching game with a lot to offer, both as the basic game and as a base to build on.

PRESENT AT THE BIRTH OF MONSTERS:
the evolution of a game

by Ken St. Andre

In a way it is all the fault of Steven McAllister, he whose name is immortalized in the Peters-McAllister chart in Tunnels &Trolls. We had only been experimenting with the most basic rules of T & T for a couple of weeks when he rejected the notion of Monster Ratings and started to individualize the creatures in his dungeons. The first result of such a fairness policy was the chart that regularized the creation of Elves, Dwarves, Fairies, Hobbits, Trolls, Orcs, Giants, etc.

After that, the very nature of Tunnels & Trolls, and my own sense of fair play, made the development of Monsters! Monsters! inevitable. For a fair description of how the game actually arose I refer you to my introduction in Monsters! Monsters! It only remains to say that M!M! already existed in rough form as early as November 1975, and that Howard Thompson had agreed to print it as early as January 1976.

This article really has to be a designer's explanation of two games in one, because I can't really talk about the guiding principles of M!M! without actually talking about T & T at the same time. T & T started as a revolt against needless complexity in Dungeons and Dragons. I don't like 4 & 22 & 20 sided dice.

Such polyhedrals are difficult for the average person to acquire and are also quite expensive. (Since I was unemployed at the time, I was strongly opposed to anything that inflated the price of gaming, and on strictly anti-inflationary principle I still oppose the kind of elaborate equipment that raises the cost of my gaming. I am probably a minority of one opposing the use of miniatures in fantasy gaming, preferring the picture in my own imagination to a piece of painted plastic every time.) So guiding principle number 1 was: whenever dice were needed they would be the conventional 6-sided cubes that anyone could go down to the corner drugstore and acquire.

The next thing I wanted to do was make a player-character's dice-created attributes directly applicable to the play of the game. Thus, heavier weapons required greater individual strength to wield them. When using magic, higher level spells are equivalent to heavier, more powerful weapons, and so, required more strength to cast them. What is the point of giving a character a Constitution rating if you're not going to use it for anything? So I defined Constitution as how much damage it took to kill a person. Luck has always played an important part in my own life, and from my extensive reading in the field of heroic fantasy (and just plain history) it has always seemed that luck was a major factor in the success of any kind of hero. Logically, when one is in a situation where nothing else can help, luck can still come through and save your neck. Thus, a character's luck became the sole basis for Saving Rolls (which are used when a character needs a chance to save himself from something unpleasant). Here I must disagree with something Steve Jackson changed in the rules of M!M! On page 29 there is a discussion of Saving Rolls, and there is a column labeled minimum roll required. Since a character's likelihood of making it's Saving Roll is meant to depend solely upon it's luckiness, the minimum saving roll required would always remain the same. I like the number 5 on 2 dice because it is truly a minimum, very easy to make but yet not automatic. I have no hassle with those who say 5 is too easy and move the number up to 7. The reason for putting a minimum on Saving rolls in the first place was so they wouldn't become automatic (Say you have a Gremlin with luck of 24. 20 minus 24= -4. He would automatically make all first and second level Saving Rolls, but that's not fair, because even the best of luck fails sometimes.). On the other hand it is not easy (even when doubles add and roll again) to make a 9 or an 11 on demand. It also unfairly penalizes characters who have built up their luck rating to a fairly high level. The Saving Roll for a character with a luck of 28 should be 7 on the fourth level of difficulty, not 11. The other attributes also have a direct bearing on the play of the game. A snollygoster with a dexterity of 3 will not turn into a deadly missile weapon fighter.

Another very important aspect of the design of M!M! is the premise that characters who manage to survive will be able to improve themselves. Personal growth is most of the incentive to continue playing the game. Individual ratings may get to incredibly high levels by the standards of other game like D & D, but within the T & T/M!M! universe. No matter how high ratings in an attribute get, they will be internally consistent. Thus, while it is rare to have a human character with a gigantic strength of 60, it is not impossible, and granting that there was such a character, the extra advantages that it derives from such superhuman power are quite reasonable. One of the pitfalls of this kind of open-ended attribute system is the incredibly generous or thoughtless game master who paves his tunnel complexes and city streets with diamonds and enchanted doodads that double all attributes without the character really doing any work except to pick up the goodies. This becomes a form of monster creation all its own, and can lead to ridiculousness, with gremlins or hobbits more powerful than any 3 giants. However, such problems tend to be self-correcting. Game Masters have the right to forbid the use of such absurd characters, or alternately the whole game turns into something done purely for laughs, and everyone has such a good time being silly that you don't mind the absurdity of it all. Personally, it is my belief that magical benefits should be hard to come by, both for humans and monsters, which will then limit attribute growth to what could reasonably result from a character's efforts to improve itself.

The thing that pleases me the most about T & T and M!M! is the sheer open-endedness of it. I try very hard to get the players deeply involved in their own intensely personal creative efforts. For T & T you are expected to design at least one tunnel complex; for M!M!, I really expect the players to design their own city. That is a lot of work, but the rewards are tremendous . . . and educational. When you get into city planning, the details of how this place could really work, you will learn a tremendous amount about what life must have been like in the Middle Ages. If you want to run a city of 20,000 people, you have to provide a way to feed them, a reason for 20,000 people to be in one place, a world or at least a nation for them to be a part of, and dozens (or hundreds) of other details. Once the geography is taken care of, you must be ready to evoke the personality of potentially any one of the 20,000 inhabitants. Not everyone the invading monsters will run into in this city is going to be a fearless member of the guard who bravely leaps up and attacks every troll he sees. Probably the most fun I ever had creating characters in Krosht was the time the troll tore down an outer wall of a brothel near the city wall and found a houseful of women, one or two of whom were actually good-looking. For the rest of the trip I amused the players by having these captive whores try to seduce the more humanoid monsters, all the while demanding the most outrageous fees.

In fact, the possibilities for invention are endless. In M!M! we give you 52 different varieties of monster, but that is not to imply that you are limited to those monsters in the glossary. A thorough examination of the monsters' attributes table will give you a good idea of how to go about creating the monster of your choice. Suppose you wish to have a were-eagle. You can have it. Imagine the dismay of a city guardsman who thinks he has apprehended a normal thief who turns into an eagle right before his popping eyes. Let us say you are fond of dinosaurs. There is no reason why you can't have T. Rex running rampant. No IQ to speak of, and very little dexterity, but strength right up there with a dragon and a constitution to match. Say Tolkien is not your favorite author--you don't care about Elves, Dwarves, Orcs, and Hobbits. Instead, you dig the Arabian Nights and would rather have an Afrit, or a man-eating camel. All you have to do is persuade your friendly local game master to let you ransack the

place with a genie. Just don't be surprised when a corps of 7th level wizards show up to greet you, just happening to be in town for a wizard's convention that weekend. Essentially this is what Liz did in painting the front cover, invented her own brand new monsters--the green beastie--right on the spot. And we did the same thing with the Shadowjack, inventing, as a type, a character who had been an individual in a Zelazny novel.

I have tried to avoid repeating information about the game actually given in the rules for M!M! or T & T. I haven't said much about why magic is the way it is, or how the combat system works. For those who read the rules, the logic and the problems are apparent. I would like to note that there really should be an asterisk on the"Take that you fiend!" spell, the effect being to multiply the caster's IQ by the level the spell is cast on.

I'd like to say a few words about the problems of producing this kind of role-playing head game. It looks easy. If you are an average reader you can get through the rules of M!M! in about half an hour. But it is like writing a salable story in that one must be careful in what one says. The object in M!M! has been to give all the information necessary to set up and play the game without going on in boring length on any one thing. I have also tried to be amusing about it, and Steve Jackson seems to have felt the same. The whole thing has been proofread at least a dozen times to try and eliminate contradictions between something explained one way on page 8 and completely different on page 32. Last, and most difficult, is the task of getting your artist to come forth with material to bring animation to what starts as a bunch of abstract ideas. I want to give pounds and buckets of credit to Liz Danforth whose graphics are, in my opinion, easily the finest part of the whole M!M! production. Even though I had to spend all my spare time cajoling her to draw, offer incentives like cash out of my pocket and a cut of the profits forever, and almost camp in her living room at times to keep her brushes to the easel, this game never would have seen the life of print without her artwork behind it. My advice to other game designers is make friends with as many fabulous artists as you can, and when your're ready to publish, include as much art as you can get.

BOOKS

MAN PLUS

by Frederik Pohl

In Tonka, Oklahoma veiled in a near perfect security web is the Man Plus Project. This project has one simple goal: create a cyborg capable of existance on the planet Mars.
The race to colonize Mars is on and the U.S. must win if WW III is to be avoided. Roger Torraway, hero-astronaut, is about to become a super sophisticated, $20 billion Martian.He will be torn apart and be completely rebuilt. All that will be left of the human Roger Torraway is a human brain and his very much slowed down heart. The rest will be machine. A very fine machine with a single goal; Roger would be placed on the surface of Mars ahead of the Communists,and he must survive. He would be given a newly designed computer to aid him, but it will be up to Roger to bring about success.
Fred Pohl has done a masterful job with this,his latest book. It is a well written example of science fiction at its best. Then the incredible character of Roger Torraway, complete with multiple scan eyes rhino hide skin,"bat wings" that absorb energy directly from the sun, and a new computer to help interpret anything to unusual, will become an unforgettable cyborg. TSG recommends this book for all those who enjoy fast paced, action stories

THE WORLDS OF FRITZ LEIBER

This is a brand new collection of short stories by a legend in the fields of horror, fantasy, and science fiction. Fritz Leiber has given me more hours of enjoyment than any other single writer in the field of speculative fiction. He is a total master of the written word (this year he won another Hugo for "Catch That Zeppelin" which is included in this book) From the introdution by the author:" I believe this collection represents me more completely than any other." Twenty-two stories are included. Don't miss this book!

MAN PLUS is available from Random House, but TSG recommends a short wait for the paperback.

THE WORLDS OF FRITZ LEIBER is an Ace paperback and carrys a cover price of $1.95.

....FEEDBACK....&.... GAME RATINGS

PROJECT FEEDBACK

Rate	Project
6.36	Fantasy Role Playing Game
5.79	MicroGames
5.70	Universe
5.37	Metastar System 80, Board
5.23	Metastar System 80, Computer
4.64	Fantasy Role Computer Game
4.42	The Computer Gamer zine
3.51	The Fantasy Gamer zine

You can see why we won't be spliting up TSG into specialty zines. The answer to improvements would seem to be expanding TSG to make more room for everything.

The generally low ratings in comparison to the game type rates comes from the nature of the project feedback. Readers know we can't do everything. So, as is your right, what was liked was rated very high. What you wanted less was rated very low to help what you really wanted. That's the only way you can explain a feedback that rates Fantasy Role games at 7, behind Society games at 9, then gives the FRP game a rate of one and Metastar a 9.

GAME TYPE RATINGS

Rate	Game Type
7.52	Future Society Level (FSL)
7.03	Fantasy Role Playing (FRP)
7.03	Space Tactical Level (STL)
6.74	Planetary Tactical Combat (PTC)
6.24	Fantasy Board Game (FBG)

Not too suprisingly the Future Society Level game was most popular. Since most of our readers started with us on Stellar Conquest that figures. It's also not too suprising that Fantasy Role Playing and Space Tactical Level do well. They are the next most developed type of game on the market. We plan to eventually have offerings of all types of SF&F games even though complex, society level games will probably be our best specialty.

TSG #7 FEEDBACK RESULTS

Rate	Article
6.79	Starship Troopers: Review
6.61	Intermediate SC Rules
6.31	Dreadnaughts for My Lady
6.31	Game Design Notes
6.21	Orbiting Colonies
6.19	Starship & Empire: Review
6.00	Warship Design
5.91	Eldritch Wizardry: Review
5.17	Scenario... by Colodiy
5.12	The Birds
6.06	Average all Articles

GAME RATINGS

Rate	Game
Fantasy Role Playing Games	
7.70	Empire of the Petal Throne
7.51	Greyhawk
7.26	Dungeons & Dragons
7.16*	Monsters! Monsters!
6.78	Eldritch Wizardry
6.35	Gods, Demi-Gods & Heroes
6.04	Blackmoor
5.79	Tunnels & Trolls
5.39*	Citadel
5.35	Royal Armies of Hyborean Age
5.13	Chainmail
Fantasy Board Games	
7.08	White Bear & Red Moon
6.76	Sorceror
6.46	War of Wizards
5.65	Dungeon!
5.41	Siege of Minas Tirith
4.30	Battle of Helms Deep
4.00	Battle of Five Armies
Planetary Tactical Combat	
7.03	Starguard
Future Society Level	
8.17*	Outreach
7.90	Stellar Conquest
5.97	Starlord
5.73	Star Probe
Space Tactical Level	
7.08	Star Force
6.85	Triplanetary
6.09	The Ythri
5.50	Alien Space
Space Role Playing	
5.00*	Starfaring

The asterisk indicates that too few ratings have been received for a fully stable score. Stellar Conquest has been moving up despite it's age. Outreach is going to be popular. Monsters! Monsters! is also getting a pretty good reception.

REVIEWS

SHOOTING IS NOT THE WHOLE STORY: A Review of STARSHIP

by Tony Watson

Every once in a while a really good, innovative game will appear from a small and relatively unknown design group. Such is the case with Fantasy Games Unlimited's Starship.

It is apparent that some good thinking and design work went into the creation of Starship. The game system is excellent and achieves its end as well as entertaining the players with a good "feel" of space contact and engagement.

The key word is "contact." Starship is not a game of space combat per se; it is a game of contact. Each of the two players controls one starship in a situation governed by one of four different scenario orders with goals kept secret from their opponent. There are four sets of mission orders for both the Interceptor and the Intruder. They range from attempts at peaceful contact to the out and out destruction of the opposing vessel. Levels of victory are determined by comparing the actual outcome of the encounter to three different categories of criteria: Tactical, or military victory; Strategic, or fulfillment of outlined missioned goals; and Command, or violation of certain orders (such as firing when forbidden to, etc). It is possible for a player to win a resounding military victory yet still lose because of a failure to fulfill his strategic goals (a peaceful contact) and/or violating orders (firing at the opposing vessel). It is also quite possible for both players to claim a victory since their objectives may be very diverse.

The actual mechanics of the game are somewhat like many air wargames, including speed, damage, and weaponry status (which are maintained on a series of tracked charts). Sliding counters along the tracks will denote changes in the vessel speed, what weapons are armed, shield strength, and any damage the vessel may have accrued. But most important , the tracks kept record of any critical strain that any of the systems have taken.

Movement and combat are handled in terms of stress upon the spacecraft. Propulsion at higher speeds places a greater stress, or critical strain. Along certain ranges of the track (low speeds), strain will dissipate by itself; but, if you pass beyond that, the only way to cool the ship is by slowing it down to a very low speed or shutting it off completely. Passing certain critical points will result in permanent damage. Permanent damage lowers shield level and hampers speed. Over heating weapons (by loading and firing at a high rate) will fuse them. The trick to staying alive in combat is learning how to handle the excess strain before taking irreparable damage.

Combat utilizes anti-matter pods and disruptor cannon. There are also arrestor beams, but they serve as tractor beams and do not cause direct damage. Weapons must be loaded before firing; this takes time as well as causing strain on the weaponry system. In combat resolution there is no chance element. During the combat phase (there are two a turn), each player reveals his plotted shot of type and range. If the range is correct or overshot the target is hit, with appropriate decline in effectiveness of overshots due to range. Each type of weapon has a damage capability factor, with pods being more effective than disruptor banks, though shorter ranged. The weaponry critical strain record keeps track of the strain on those circuits, and it is not difficult for a trigger happy space captain to burn up his guns.

Starship utilizes a small map which is three dimensional in design. A distance computation chart as is Starforce is used to determine distances. After moving, the actual distance between the two ships is figured and both are placed on the center of the map at different heights to denote their separation The relative distances between the craft is the important thing, for with the high speeds, the ships are capable of being off the map in no time. However this system also limits play to two ships, unless someone has a good command of trig.

Optional rules allow for reflector screens, computer fire control, or improvements in standard capabilities. This adds even more to the uncertainty of an encounter since these options are kept secret from the other player.

The physical components of the games include: a weaponry record, an engineering record, a distance computation chart for each player and one map. There is a set of unmounted counters for both sides. Rules are in a twenty page booklet that is generally clear and comprehensive. Components are in black and white.

Starship is fast paced and plays well. The emphasis is on skill and bluff, outmanuver and good planning rather than luck and certainly one of the better science fiction tactical system around.

Starship is $6 from Flying Buffalo Inc., P.O. Box 1467, Scottsdale Az. 85252.

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GAME REVIEW: SORCERER

by
Linda Brzustowicz

To date, I have read nothing but very complementary reviews of SPI's fantasy game SORCERER. However, in the June-July issue of TSG, SORCERER received an overall grade of only 6.7 (on a scale of 1 to 9), compared to a 7.7 by DUNGEONS & DRAGONS, and a 7.6 by STELLAR CONQUEST. Hoping to solve this seeming paradox, I bought a copy of SORCERER.

I received my first minor disappointment when I opened the box. Inside I discovered a paper map. I happen to be one of those people who like the durability of a board-mounted map, not to mention the additional mobility it gives if you are forced to move the game. However, I managed to quickly overcome my dissatisfaction by looking over the rest of the game. The die-cut pasteboard counters were beautifully colored and printed with ingenious silouettes of the various magical and non-magical units they represented. The map too was very colorful, with the 518 one inch hexagons colored pastel shades of the six magical colors, plus white and grey. Necessary charts were printed right on the map.

My next task was to read the 16 page, 8½" x 11" rules folder. Aside from the humorous introduction and the descriptions of the nine scenarios, the rules read like an army manual. This type of very explanatory writing is good because it makes sure all of the rules are understood. It also makes for very boring reading. Nevertheless, it describes a world in which magic is fully operative. Six magical universes overlap a non-magical one, creating the graylands where no magic works, and the white land where all magic works. In the rest of the land, the dominant form of magic varies.

The most important unit in this game is, of course, the sorcerer. Actually, there are a total of 55 sorcerers, although more than 20 are never used in any scenario. The sorcerers have power over one to three colors. This means they can conjure up to five air dragons, three demonic infantry, or two trolls (or a combination of magical units), while they are in a hexagon of their color, each move. The sorcerers can also throw magic bolts (analogous to artillery), from a square of their color to another square of their color, teleport from one square of their color to another (analogous to air transport), undeplete a unit of his color, or conjure or destroy a vortex (a magical storm of chaos). Optional rules provide for some interesting spells and rules, such as invisibility, clones (where a multi-color sorcerer splits into single color sorcerers), assassination details, and the effect of the shifting of the magical universes. There are some suggestions for spells to be developed by the players as the game progresses.

All in all, I found SORCERER to be an enjoyable game. The one major point of the game I didn't like was the shallow development of the importance of magic. All the colors did was to divide the map and give units an advantage in one battle that they lost in the next. I would have preferred to see each color as a separate type of magic, with the same overall strength, but with different characteristics and limitations.

SORCERER is available from Simulation Publications Inc., 44 E. 23rd St., New York, N.Y.10010 for $9.00.

STARSHIP TROOPERS: A REVIEW

by Sumner N. Clarren

To the slowly growing set of fine science fiction board games, add STARSHIP TROOPERS by Avalon Hill, released in July at the second national gaming convention, Origins II, in Baltimore. For the last several years, Avalon Hill has produced only historical war games. However, the renaissance of gaming over the last three years, and the success of science fiction games like STELLAR CONQUEST and STARFORCE has lured this usually conservative game company into producing a truly interesting science fiction game.

SST was apparently produced with the blessings of Robert Heinlein, author of the book by the same name. His letter and signature are on the back of the bookshelf style, multi-colored game box.

The game is truly tactical in scale and in flavor. A hex is one mile across, and one turn is approximately 12 minutes. The game is designed by Randall Reed, who brought miniature detail to board games with tank vs tank battles in TOBRUK. Unfortunately, TOBRUK also required an excessive amount of dice rolling. Randall Reed recovers nicely with SST where the play mechanics are clean and well-conceived, leaving a game which is accurate to the book, yet eminently playable.

The game, in seven separate scenarios, sets forth the confrontations between the Terrans (earth men) and two alien races: the Skinnies (humanoid and nine feet tall) and the Arachnids ("a mad man's concept of a giant intelligent spider").

Avalon Hill's fine quality and attention to detail are reflected in the game components and playing aids. The full-color, mounted mapboard suggests an alien planet with pink mountains, burned-out red desert, green savanas, and rainbow-hued city and spaceport. The over-500 counters make use of suggestive silhouettes for the main combatants and mobile weapons. A counter represents a single terran (in armored suit), or a unit of enemies. Also represented are a full range of S. W. & E. (Special Weapons and Equipment), air cars, engineer units, and even a human with ESP talents. The attractive, two-color booklet includes useful information, pictures, and play examples, as well as the full rules. (Incidentally, lest you be alarmed at first, the charts for combat and terrain effects are not in the rules book, as the rules state, but on a separate piece of card stock). The rules book uses the "programmed instruction" method tried out in Reed's earlier game, TOBRUK. Scenarios are arranged in increasing order of difficulty, with new groups of increasingly complex rules introduced for each scenario. This structure allows one to start quickly and to digest the rules through the use of bite-size increments of detail.

Almost all the interesting and highly destructive weapons are there. The terran player has a status sheet so he can easily keep track of the weapons each of his men is carrying. Included are high explosive rocket launchers, nuclear weapons, delayed action proximity and delayed action remote mines, heavy nerve gas (useful against those spiders), various demolition charges, and heavy beam and missile weapons.

The game has a good feel to it (By "feel", I mean the gestalt

AH-HA of seeing reality captured through the fortuitous, artful use of rules). In my third game, four terrans (two scouts and two marauders with rocket launchers) coordinated their efforts so that within one-half hour (two moves) they were able to disrupt a strongpoint and destroy a nearby communications center and power station before the Skinnies could respond. In another game, B squad was totally surprised when holes in the ground opened up to disgorge heavy beam weapons and angry Arachnid warriors. A separate pad, duplicating the board allows for the secret plotting of the complex Arachnid tunnel systems, the positioning of Arachnid engineers, and the placing of demolition charges for the unwary Terrans. Game rules allow for infantry drops to the planet with the inevitable scattering, retrieval boats, rocket beacons and full retrieval procedures. In later scenarios, the terran can descend into the Arachnid tunnels to capture an Arachnid brain and to free prisoners.

STARSHIP TROOPERS is a fine tactical science fiction board game from Avalon Hill. It will be interesting to compare it with SPI's STAR SOLDIER now being play-tested, which is in the same scale. STARSHIP TROOPER is available from Avalon Hill, 4517 Harford Road, Baltimore, Maryland 21214 for $10.00 plus $1.00 postage.

NEWS & PLUGS

KEN ST. ANDRE WRITES

I have always felt that ideas belong to everyone. Hopefully M!M! will inspire ideas to keep its players amused indefinitely. If problems come up (and no matter how careful one is they always seem to), I trust you will be able to read between the lines and solve them for yourselves, but if you ever feel you want to talk to me about anything that has to do with M!M! or T & T, I would be glad to hear from you. My address is 2232 E. Pinchot #8, Phoenix, Az. 85016, and my phone number is (602) 955-6229. Happy human hunting and Merry Monstering!

WINTERCON V

100+ man D&D, Boot Hill and Lankhmar tournament plus Q.and A. D&D Seminar on Dec. 3,4,5 at Oakland Univ., Rochester Mich. Guests: Gary Gygax, Brian Blume, Rob Kuntz. For more info: Bill Somers, 1654 Chandler, Lincoln Park, MI , 48146.

WINTER WAR IV

Annual con of the Conflict Simulation Society at the Univ. of Illinois in Urbana. Dates: Jan. 14, 15,16. Diplomacy, D&D, Wooden Ships & Iron Men, more. Write: Rusty Rutherford, 1005 S. Race St., Urbana, Ill., 61801.

WARCON III

Board wargames, fantasy games,etc. with prizes for tournament winners. At Texas A.&M. on Jan. 28,29,30. Info from: Jerry D. Ruhland, POB 6816 Aggieland St., College Station, Tex., 77844.

GROUND ZERO

A weekend of competitive gaming, strategy discussions & films. Feb. 19,20 in Jacksonville,Fla. More info from: The Cowford Dragoons 5333 Santa Monica Blvd. N., Jacksonville, Fla., 32207.

NOTICE***NOTICE

Metagaming Concepts and The Space Gamer announce that we will no longer be able to accept orders for games or subscription from foreign countries.

SPACE HUK

This is a variable-player, limited intelligence, tactical, space wargame. Each player has one or more starships with which he takes on other players. 1 to 9 copies-$2 each; 10 or more copies -$1.50 each. Send orders to: Scott Rich, 1640 East 1140 North, Logan, Utah, 84321.

TOLKIEN NOTE

The Sept. issue of Mythlore has announced the autumn 1977 publication of THE SILMARILLION by Allen & Unwin. Tolkien was working on this book at the time of his death. It is written in King James Bible style and has been edited by his son Christopher.

STAR EMPIRES

TSR Hobbies Inc. reports by phone on 10/26/76 that the STAR EMPIRES supplement to STAR PROBE will not be ready until late Dec. instead of the originally quoted Sept. 1. If STAR EMPIRES has been ordered from MGC/TSG or another supplier this is the reason for the delay. MGC/TSG has a large back order with TSR and will ship all orders as soon as we receive the booklets.

QUICK COMMENTS FROM FEEDBACK SHEET

Editorial:
-excellent
-good somewhere else but not in an SF magazine
-does Howard Thompson enjoy what he is doing? would he be writing this editorial at all without that college education? college is exposure to education-and not neccesarily in the classroom.

Dreadnaughts for My Lady:
-great idea, let's see more
-has this character ever read any science fiction?

The Space Warship:
-great idea, poor execution
-drives themselves are very detectable
-superficial

Scenario:
-comic book game?
-cute

Orbiting Colonies:
-covered in Analog
-what about radiation, meteors, economics?
-rehash

AGGIECON & WARCON

TSG/MGC will be at AggieCon and War Con. Rumor has it that someone else has already slated a STELLAR CONQUEST tournament. MGC will sponsor at least one event, possibly with a new MicroGame, and run a dealer's table with all our products.

A.F.F.F.&C.C.C.

The Austin Fantasy Film Festival & Comic Collectors Convention will be at the Stephen F. Austin Hotel in Austin, Texas on November 19-21. MGC/TSG will be there part of the time with games for sale, some games to play, and conversation.

ORIGINS"77

The National Wargaming Expo will be held at Warner College in Staten Island, N.Y. on July 22,23,24, 1977 We have very little info, so write ORIGINS '77, Simulations Publications 44 E. 23rd St. New York, NY 10010.

EDITOR

Ben Ostrander of Austin has taken over the editor functions of THE SPACE GAMER Submissions for publication should be sent to him at the TSG/MGC address.

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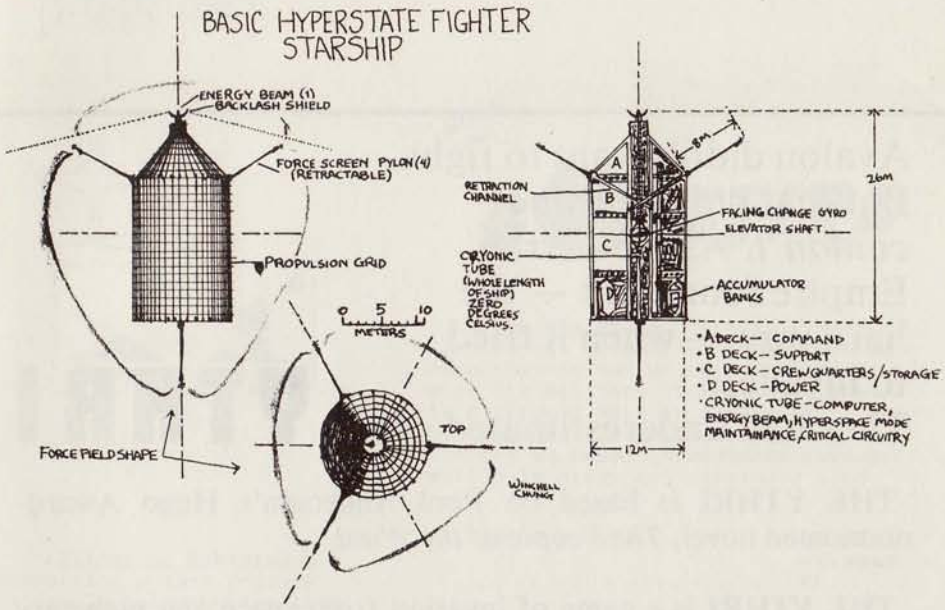
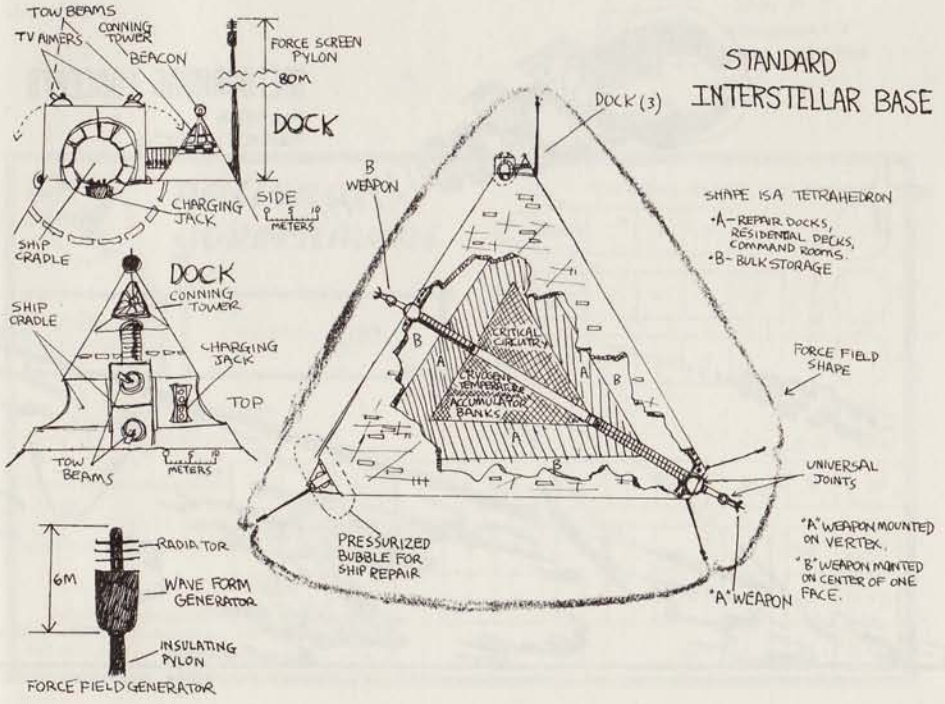
SF SWIFTIES

by Steve Jackson

"Ha, Kirk! Your weapon is empty!" cried the Klingon, unfazed.
"Nobody can survive 15 Gs," said Tom, flatly.
"This spell will protect our party from the giant birds," intoned the wizard impeccably.
"I've lost the signal, sir," said Uhura remorsefully.
"What our captors have forgotten is that, on the Moon, anyone could easily jump the Grand Canyon," said Tom with an Evel grin.
"I am call Circe," she said charmingly.
"This wind amulet has lost its power,"said Captain Illq'uurth disgustedly.
"Giant insects are suckers for judo," said Tom flippantly.



These illustrations by Winchell Chung show a warship and an interstellar base for HYPERWAR, one of several MicroGames currently being designed. HYPERWAR will be a tactical ship combat game played without dice or other random elements. Combat will be resolved through the interaction of player-selected strategies and allocation of ship power to defense and offense. Players design their own ships; as the game progresses, technology improves and more powerful ships can be built.

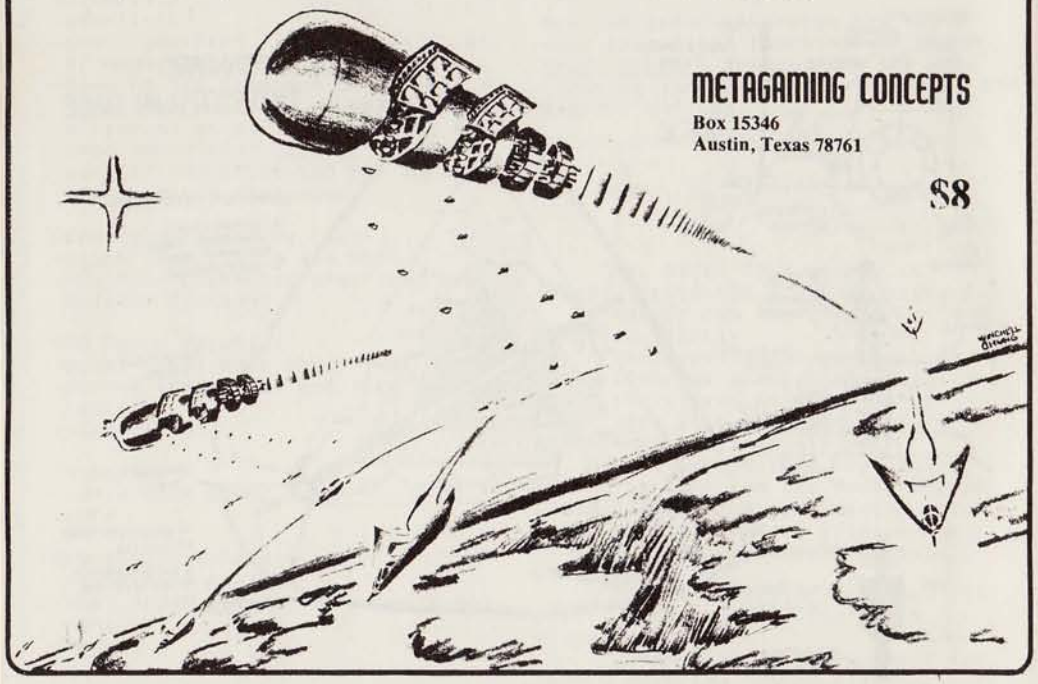


Avalon didn't want to fight.
But that didn't mean it
couldn't. As the Terran
Empire found out — the
hard way — when it tried
to invade...
They had underestimated **THE YTHRI**

THE YTHRI is based on Poul Anderson's Hugo Award-nominated novel, *The People of the Wind.*

THE YTHRI is a game of invasion from space and planetary combat for two to four players. It can turn any science fiction fan into a wargamer — and vice versa.

Includes: Rule booklet / 14 x 17'' space map / 17 x 18'' Avalon map / 242 perforated counters / combat results tables



METAGAMING CONCEPTS
Box 15346
Austin, Texas 78761

$8

DESIGN NOTES

GODSFIRE LOGO

GODSFIRE-
PDF COUNTERS
(50%)

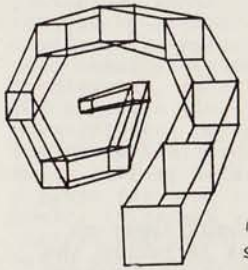
GODSFIRE

The Tax Phase. Cars quit when they're out of gas; governments stop when they're out of money. Players must win military victory, but that is difficult with an inadequate economy and a rebellious population. Victory is based on adequate revenue willingly given and cunningly used.

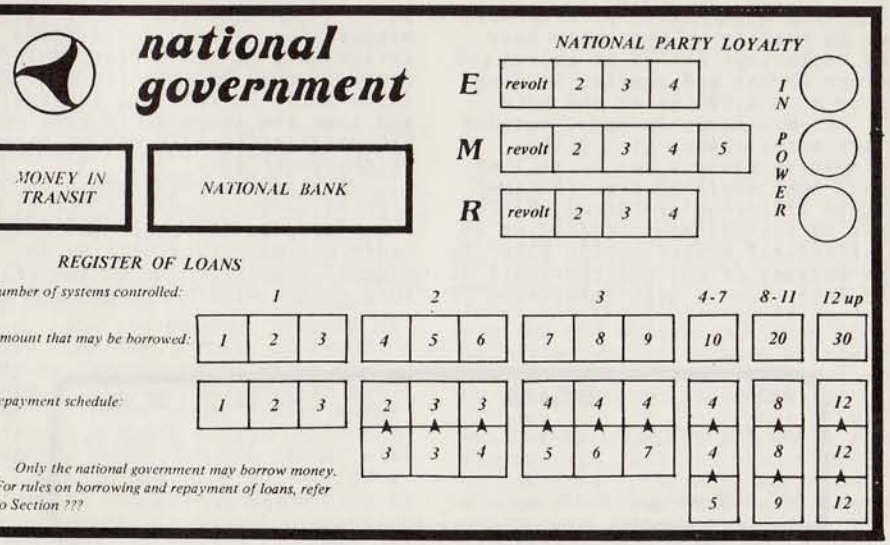
Effect of Subversion. Subversion pushes regions to revolt, eliminating them as tax and production sources and disrupting the player's party balance.

Scenario Four. As the worlds of the Narym woke, the Bosses were overthrown one by one. Limited representative government appeared...

GODSFIRE - CELL DESIGN #1



SOLID ON -11; INCREASINGLY LIGHT SCREENS ON HIGHER CELLS...


national government
NATIONAL PARTY LOYALTY
E revolt 2 3 4
M revolt 2 3 4 5
R revolt 2 3 4
IN POWER
MONEY IN TRANSIT
NATIONAL BANK
REGISTER OF LOANS
Number of systems controlled: 1 2 3 4-7 8-11 12 up
Amount that may be borrowed: 1 2 3 4 5 6 7 8 9 10 20 30
Repayment schedule: 1 2 3 2 3 3 4 4 4 4 8 12
3 3 4 5 6 7 4 8 12
4 8 12
5 9 12
Only the national government may borrow money. For rules on borrowing and repayment of loans, refer to Section ???

LETTERS

Dear editor:

In TSG #7 Norman Apperson wrote an excellent letter on the difficulties of hitting a target with laser fire at the 300,000 mile figure I mentioned in my laser article in TSG #5. Indeed it does require a high degree of accuracy, but in reality we presently have the technology to hit an object 100 meters across and smaller in deep space at 300,000 miles and more.

As Mr. Apperson says, hitting a 100 meter object at 500,000 kilometers means a ten meter long laser tube would have to be aimed within 2 microns or .002mm. To do this we solidly mount the laser as a structural member of the ship. To the outside of the cooling shell of the laser tube a high resolution TV camera is solidly mounted. The camera is highly sensitive (Present military TV scanners can produce a daylight quality battlefield picture using only starlight.) and designed to pick up only light at the laser wavelength. The lens on the camera is a high magnification type. The TV display feeds directly into a computer which controls very small maneuvering rockets which aim the entire ship at the target. A special lens mounted on a rotating arm spins in front of the laser end 120 times a minute.

In the vacuum of space laser beams will not diverge significantly over great distances, and the ability of optical equipment to pick up objects at great distances is only limited by the size of the optical lens and its quality of workmanship. The small, lightweight TV camera aboard Mariner 10 was able to obtain resolution on objects 150 meters across at 10,000 km. above Mercury and 20 km. across at 4,500,000 km. The TV camera used on most of these missions uses about 750 lines verticle and 750 horizontal. Therefore to penpoint an object 100 meters across at 500,000 km. the TV camera will have a telescopic lens giving it a seventy-five km. field of vision at that range.

In operation the laser weapon would initially fire when the rotating diverging lens was covering the end of the laser. This would produce a wide beam of about 75 km. at 500,000 km. The reflection of the target would be picked up by the TV camera and fed into the computer which would then activate maneuvering rockets and aim the entire ship at the target. This process would be repeated once or twice until perfect aim is obtained and then the laser would fire when the rotating lens is not in front of the laser end.

Once this system has been sighted in by actual firings at drone targets in space, the only cause of inaccuracy will be the unequal expansion due to temperature change within the metal between the camera lens mounting and the laser tube itself. Since the laser would be continuously cooled and could be fired at intervals accurate to one thousandth of a second, this change in beam aim would be minimal and predictable. After trial firings on drones the computer would be able to predict and compensate for these very small changes in beam aim on the first firing, second firing, etc.

RANGE	TIME LAG	7 Gs	40 Gs
100,000 miles	1.08 sec.		1,382 ft.
600,000 miles	6.45 sec.	1,444 ft.	

If you are still not convinced, let's try another approach. Mr. Apperson states that the range might move out to 5,000 km. where the ten meter long laser tube could be off by 0.1 mm. That degree of accuracy would be a piece of cake for the system I have just described. To increase that range by ten fold we will use the laser as a scatter weapon. If the beam is allowed to diverge uniformly over a large area the power density will drop too low to be effective, but if the beam is split into smaller components with separation between them, the beams will cover a much larger area with no drop in power density. A special lens will cause the 1 meter diameter beam to break up into 400 beams of 2 inch diameter each. The distance between the small beams will increase as they move out until at 50,000 km. each beam will be 50 meters apart and they will cover a circular area 1 km. in diameter. Each of the smaller 2 inch (50 mm.) beams will have the same hole cutting power on metal or force field as the larger beam; only the holes will be smaller. To increase the range another ten fold to 500,000 km., increase the laser tube size to a ten meter diameter and break the beam into 40,000 beams of 50 mm. diameter and blanket a 10 km. diameter circle.

Since we have seen that current technology should be able to hit an object with laser fire at 300,000 miles and we are talking about advanced systems combat of five to ten decades into the future, I think hitting an object at 300,000 miles is quite conservative. When I wrote the article on lasers I assumed that, like the weapons systems of today, the development of laser weapons systems would go to the maximum possible range. From the time the laser range finder light reflects off the target until the weapon's beams hit the target will be the time lag. The ability of a target to out maneuver the fire is dependant on its ability to take G

(See table on bottom of page 26)

forces. With a split beam laser covering 1 km. the seven G ship could be hit at over 600,000 miles and the forty G ship at 100,000 miles. As I originally said, the combat range of the laser warship should move out to about 300,000 miles.

* * *

The laser triggered miniature nuclear warheads I mentioned in the TSG #5 article apparently already exists in a little larger form. Reports of the 13th meeting of the NATO Nuclear Planning Group in 1973 suggested possible deployment of multiple warhead for missiles in 1978 which are clean (no fission products) and with a yield of 50 to 100 ton of TNT.

In the same article I failed to mention a theoretically possible laser that may become a major weapon in the distant future. Selected isomers of selected isotopes are imbedded in a beryllium rod core, which is surrounded by a layer of enriched uranium or plutonium, which is in turn surrounded by a layer of deuterium or tritium. The entire mass, which is only about 100 microns (0.1 mm.) in diameter, is rotated in a powerful magnetic field and hit with a powerful fast pulse laser. As the entire mechanisum vaporizes in a small nuclear detonation it emits a gamma ray beam of tremendous power. It should work, but the theoretical physics required to build such a device is extremely complex. If the GRASER (Gamma Ray Laser) is possible, it may be a long time coming.

Charles R. Bowles
Colo. Sprgs., Colo.

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Following your comments on growth, it seems to me that the wargame/fantasy-posture industry as a whole will probably hit about $20,000,000 sales in 1982, given a modicum of stability, and then will level off there indefinitely, depending for further advances on inflation or fad or some unknown Bobby Fischer. At the moment I see no reason why MC should not be turning, say, 2-4% of that total by then. This stuff is beginning to be respectable, and its possibilities in informal tutorials among the middle class have not been scratched. Speaking Eldon Tannishly, the greatest market seems to be in

eastern Europe and the Soviet Union- very high literacy, chess is big, they are philosophically agreeable to considering societies as long-term affairs, and the applications of systems analysis are still pretty avantgarde. The difficulties are enormous, of course, but the Soviets do like to grant monopoly situations, though they would never put it so.

Lynn Willis
San Francisco, Calif.

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It seems strange to me that a magazine which is dedicated to science fiction gaming, and continually produces excellent articles on this and related subjects, should carry an editorial damning "creative thought". Worse yet, the tone of the editorial was one of self-righteousness and hellfire-harangue which I have not encountered since I read Sinners in the Hands of an Angry God. Finally, the general content of the editorial was roughly as silly as the sermon alluded to in the previous sentence.

I do not doubt that too many people pursue "higher education" for the wrong reasons or for no reason at all. I agree that anyone who spends years of time and thousands of dollars with no goal in mind is something of a fool, and that people who will not organize their own lives have only themselves to blame if they are not happy.

Never-the-less, the failure of education cited in the editorial is not so much the failure of an institution as it is the failure of those who use the institution blindly and without clear purpose. To indite higher education and creativity for the failure of a few folk (or many) is to put oneself in a class with certain ancient peoples who - when suffering prolonged drought, famine, or other calamity - broke their idols to show their gods how they felt.

A society such as ours needs plumbers and janitors and housewives. We also need people who can understand the workings of nuclear reactors, and someone who can design computer hardware, and someone who can improve on existing space craft. These skills, believe it or not, require years of study before one is even qualified to express an opinion. For a high school dropout to aspire to such jobs would be analogous to a five-year-old trying to win the Olympic weight lifting championship. More: these latter jobs do require creativity of no small magnitude. How else can one fathom the defects of existing designs and decide upon proper improvements.

As for the humanities: we need them to keep us in touch with our own culture and past. Although my own education is primarily technical, I find life without literature and history and art to be damnably boring. True, we do suffer from a glut of paper degrees; but once again I blame those who pursue higher education blindly and choose majors on the basis of how easy they are, rather than on the basis of how the knowledge gained will prove helpful to them. There are many alternatives to college: technical schools and vocational institutions abound. One has only to decide what one wants.

Lastly, I would like to address the idea that all proper education should be purely practical and job-oriented. To this I say BULL****! Jobs are something that a man (or a single woman) must have to eat and maintain existence, but the implication that one should forget all education and simply work strikes me as being a trifle silly. No doubt it works for some. I know people who get along very well without literature, and who could care less for history or art. I suspect, however, that if everyone tried to be a self-made man that the ideal would be as hard to reach as true creativity. I've known a few who tried that route, and went down the tubes.

The point is that most of the time simply sustaining life by work and eating is not enough. The quality of life matters almost as much as life itself. I for one would rather have a low-paying job in a town where I had friends and opportunities to pursue my hobbies, than to have a high-paying job in a town where I had no friends and no opportunities for off-the-job amusement. Believe it or not (and it hurts me to say this): money isn't everything.

I'll pass over the rest. The charges that schools exist as havens for the incompetent is too silly to bother answering. The charge that schools don't exist to impart knowledge is the expression of a narrow viewpoint: schools don't exist for ANY single reason. The knowledge is there if you want it, which is comforting to know, but getting it is up to the student. The charge that creative thinking is a blind alley is another example of a narrow viewpoint, and has been answered above.

In two weeks or so I will leave my military station and return to graduate school, where I will earn an MS in computer science. I will consider it time well-spent, and will hopefully use it to secure a higher-paying job than I could have obtained with a BS in the same field. My education will not stop after I receive my MS. Wherever I settle and whatever my job I will continue to frequent universities in search of knowledge which will satisfy my idle curiousity. Once I have a good position from which to launch these intellectual journies, very few of them will involve down-to-earth, job-related subjects. I will return to mathematics -a subject which I love but which I do not want for a primary degree, largely because there is too little demand for "pure" mathematicians. I will brush up on certain historical subjects which I have long been interested in, but which the pell-mell rush for degrees and jobs has prevented me from studying in detail. I may be able to explore English literature, and satisfy my curiousity concerning its usefullness to me.

Much of this knowledge will be pure and useless. Even mathematics tends to be abstract in direct proportion to my interest in it. Still, I may find use for this pointless knowledge. It is amazing how one can find uses for such things. If I never find any use for some field of knowledge, I will certainly not waste time reviling the institution which imparted the knowledge. It will have been my life and my decision.

Christopher S. Spilman

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Lynn White's article was interesting, but it seems that she has neglected the fact that there is no such thing as a war with a single cause, something that was drilled into me countless times by my history classes. Take WWI as an example--it wasn't just the fact that somebody from Serbia shot Franz Ferdinand that got Austria-Hungary to mobilize their troops. There were many causes besides, both related and unrelated, like the opposing forces of Austrian-Hungarian power and the Pan-Slavic movement, as well as the Pan-Germanic etc. The "Aryan Myth" so prominent in WWII already existed. The big powers wanted into the Balkans. To name a few. And the big one, namely the difference between the "haves" and the "have-nots" would surely remain even after the technology she describes is developed--not everyone will have it at the same time, and during the distribution there will be a lot of tensions, which when combined with other causes can cause a war. Especially if large governmental organization goes away.

Also, the haves always want more, usually at the expense of the have-nots. Inner and Outer Europe--WWI. I once went to a great deal of trouble creating a Terran Commonwealth that broke up that way, because "all ships lead to Earth" and eventually the outer colonies grew fed up with that axiom and just broke off, fairly peacefully. But naturally, the powers-that-be back on Earth could hardly allow that... hence a war.

And then, of course, there's always the chance that the Solar System will be invaded by monsters from Outer Space...

Eldon set off a few long-dead circuits in my mind...I have on occasion thought about having a game without rules, only with beginning forces and some very loose objectives, and maybe a planet to run around on. For example, you tell the first player that he holds a city of one-million people, named Spielenburg, on the outer fringes of a great desert. He has, within that population, 4000 crack SS troops, 350 bomber pilots, and 100 fighter pilots, and the necessary Nazi equipment to get them running. He has such and such in oil, such and such in factories and agricultural areas, and he may make such and such expansions. (I think a map of the city and surrounding area would be necessary) The next player gets an orbitting robotic station for power and a Mark XVII Bolo, on the other side of the desert, as well as ten one-man stratojets with pilots. And the next player gets 200,000 Zulu warriors and their families, scattered acorss the desert at various wetter spots. You give them all climatic reports, and the game runs pbm. A central moderator, or better yet, moderating committee, keeps track of who is doing what, as all moves are simultaneous, and at any point the game may stop, depending upon how the players and/or moderator feel about it. The players then submit their final reports, including the projected strategies of

their forces, and the committee decides who has "won," if anyone has. Eldon would then have won!

(Note: this particular scenario isn't too serious. The Bolo has no reason to fight--the Zulus may want the Nazi technology, and the Nazis the Bolo, but other than that... Of course, you could incorporate the Bolo as a moderator-controlled trouble-maker, like the vortices in SORCERER or even as a player-controlled troublemaker, with that player controlling the "machine-gone-mad" in the way which he/she feels will tear up the game the most.)

And the purpose of all this? To add realism, of course. No war has yet been fought by any particular set of rules except perhaps when a particular army got "general orders" and used those. But even when such things as international law exist, they usually get broken. Hitler marched through neutral countries without a blink, for example. And little crazy things like Thermopylae are hard to come by in a rules-controlled situation. The only rule there was -- you can march a man through an arrow very well, but not very far...people with arrows in them tend to fall down.

How about, in SC, the ability to self-destruct and really tear some enemy up? Considering the destructive force of a DN, combined with its engines, it seems to me that you could probably reduce a whole planet if you were to totally unleash all that power at once nearby. Say kill all the colonists and reduce a TR80 planet to ST60. and totally eradicate BR planets. An ATK, on the other hand, would only kill the population and reduce the planet's capacity to the next smallest level (or if that's impossible, reduce the planet's type but not population, like ST40 to MT40), and an ESC would just kill the population, and a SCT's engines would kill say ten million people. Maybe that's a bit much, but the potential is there. Maybe a SCT would only destroy a million people, and a DN would do what the ESC does above, and reduces empty planets only. But that also makes a way to break down PFS's, yes?

Well, we shall see.

K. Allen Bjorke
Minneapolis, Minn.

-.-.-.-.-

May Brian Bloomquist be hung! No satire or humor??? The man's a sadist! I'll admit that as a wargamer I take SF as not too serious, an escape hatch from the threat of eternal trenchfinger. If you can't laugh at a floundering (no insult intended) SF mag, what can you laugh at? You admitted yourself that "where you're goin" might be bankrupt. Hope not.

Please do not publish anymore articles about ESC vs. ATK. We see the ruddy problem, and who the bloody cares what the exact odds are?!! I would bet as often on 6.029% as I would on 8.336%, never, not a real bet, a kamikaze on the side, but...

Your magazine did make an interesting point, right now lasers, phasers, and blazers are less dangerous than razors.

I will probably be making several comments on SC, as I finally scrounged up the money with the inflow of summer work cash. I really wouldn't pay anybody for anymore detail ship/ship articles on SC, the "Ship Effectiveness..." article pretty much takes care of it, and who's going to argue with that roller coaster formula on the bottom of page eleven?

Frank B. Weir, Jr.
Clarion, Iowa

-.-.-.-.-.-

I used to like TSG. It was a nice, friendly sort of magazine, a format I could feel comfortable with.

This was not so with Issue #7. First of all, the editorial, besides being outright wrong, had absolutely nothing to do with gaming, which is what TSG is all about. I'm not saying that you shouldn't express your views, but you should pick subject matter related to gaming.

May I also say that swearing is a sign of a small mind. You may say that I'm old worldish, but your comment in "Game Design Notes" was totally uncalled for. Have you lost your wit?

The rest of the issue was fine, but I really couldn't enjoy it after such a cold beginning.

The quality of the magazine is definitely improving, but instead of investing your money on a computer, why not look into type setting and color covers. It would increase the quality tenfold.

But still the warmth is gone, and unless it returns, you have lost a subscriber.

Paul O'Connor
Van Nuys, Ca.

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I was extremely interested in your discussion of the use of lasers in ship-to-ship warfare in TSG #7, as I am currently developing BATTLEFLEET MARS for SPI. The two objections to the use of lasers at extreme distances (in the range of several tens of thousands of kilometers) were that a)the loss of power of a laser beam with increasing distance would decrease the effect of a laser weapon, and that b)the arc that a spaceship presents to a firing ship decreases dramatically as the distance between the two ships increases, making it difficult or impossible to hit a distant ship.

In BATTLEFLEET , we are assuming that the two most common weapons are lasers and nuclear missiles. Obviously the latter are only for use in extremely close conditions, as a nuclear blast in space (where there cannot be a shockwave) will do little to no damage if at a distance from a ship.

To answer the first objection to the use of laser weapons, the power of a laser decreases very little with distance. In space, there are obviously very few free atoms to diffuse a beam; thus the only factor decreasing the power with distance is the inevitable divergence of the beam. No matter how tight the beam is made, there will be some divergence with distance.

However, as technology increases, a laser beam can be made tighter and tighter. Therefore, if one assumes sufficient laser technology, one can assume as tight a beam as one likes. I believe it is possible to develop the technology to hold a beam to a divergence of say 100% over a distance of 50,000 kilometers over a period of 100 years.

The second objection is more cogent. As Mr. Apperson showed in his letter, the arc a ship presents at extreme distances is quite small, and thus as distance increases we can assume that the ability of a firing ship to hit another ship decreases. Mr. Apperson assumes a maximum range of 5,000 km; we're assuming a somewhat more advanced technology, and a range of 20,000 km. (Also 20,000 km is good for play reasons, which is another pressing reason).

To integrate these two factors-the fact that the power of a beam will diminish only a little over great distances, but that increasing distance will make it more difficult to hit a ship---we're assuming a "D&D"/like hit system; first you roll to see whether you've hit, and if you've hit, then determine how much damage the target ship takes. In other words, the amount of damage is in no way dependent upon the range, but the probability of hitting a ship is.

Greg Costikyan
New York, N.Y.

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In TSG #6, the writer of the review on THE YTHRI as an historical appraisal is good. He explains the reality of THE YTHRI as compared to The People of the Wind and how it could be improved to recreate more closely the outcome of the novel. However, one sentence irked me: "Unless the Terran player has been foolish and split his forces (or worse, lost some of the transports before landing), it is a simple task to capture three choths or cities and win the game by turn 12." I have played THE YTHRI for quite awhile now, to work out the best strategy, and have found that the only real hope of a successful attack by the Terrans is to split his forces. This forces the Ythri ships to spread out more, making it all the easier to destroy them one by one. Unless the Terran player is a total incompetent or someone new to the game (very new), it is an almost impossible task to prevent the destruction of even one of the transports.

On the planet, I have been successful in winning as the Terran player by splitting or combining my forces. Of capturing the bases, they are relatively easy to capture, but again, only an incompetent Ythri player would make it very simple to do it by turn twelve. In my opinion, Mr. Howe should play THE YTHRI more before making such comments on play style.

Mike Lazich
Burlingame, Calif.

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